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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,109	10/16/2000	Andre Leycuras	15675.P326	5594

7590 11/22/2002  
Blakely Sokoloff Taylor & Zafman  
12400 Wilshire Blvd 7th Floor  
Los Angeles, CA 90025-1026

EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT	PAPER NUMBER
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1763

13

DATE MAILED: 11/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/601,109

Applicant(s)

LEYCURAS, ANDRE

Examiner

Jeffrie R. Lund

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claim 17 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 6 requires an independent first and second means for heating an upper wall and lower wall of the duct. Claim 17, which depends from claim 6, requires only a single heating device. Claim 17 has been treated as an independent claim.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 12 and 20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

- a. Amended claim 12 requires that the reactor is configured to pass the compounds in a gaseous form via an outlet of the duct between an internal space of the duct and a space lying between the duct and the tube. The specification and drawing do not teach supplying gas via the duct to equalize pressure

between the duct and tube. The specification teaches an inert gas passage 44 for supplying an inert gas in between the tube and duct.

b. Amended claim 20 requires a secondary duct made of a refractory material that lines the first duct. The specification and drawings do not teach a removable duct. The specification teaches removable plates 70 that may be used to line the top and bottom of the first duct.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 6, 8-11, 16, and 18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Shimizu, US Patent 4,533,820.

Shimizu teaches the claimed invention in figure 2 and throughout the specification.

4. Claims 6, 9-11, 16, and 18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Mayuzumi, EP 0 792 956 A2.

Mayuzumi teaches the claimed invention in figure 1 and throughout the specification.

5. Claims 6, 9-11, 16, 18, and 21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wortman et al, US Patent 5,253,324.

Wortman et al teaches the claimed invention in figure 1 and throughout the specification.

6. Claims 6, 16, and 18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Nordell et al, US Patent 5,759,263.

Nordell et al teaches the claimed invention in figure 3 and throughout the specification.

7. Claims 6-8, 18, and 20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kordina et al, US Patent 5,695,567.

Kordina et al teaches the claimed invention in figures 4-9 and throughout the specification, specifically, column 6 lines 1-9.

8. Claim 17 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Toole et al, US Patent 4,315,479.

Toole et al teaches the claimed invention in the figure and throughout the specification.

9. Claims 6-8, 14, 16, and 18 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Griffiths et al, US Patent 6,133,550.

Griffiths et al teaches the claimed invention in figure 1 and throughout the specification, specifically, column 8 lines 2-31, column 12 lines 6-33, and column 13 lines 9-21.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 6, 7, 9-13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toole et al, US Patent 4,315,479, and Mayuzumi, EP 0 792 956 A2.

Toole et al teaches a reactor for chemical vapor deposition on a substrate, which extends generally in a plane, that includes: a horizontal duct 8 made of a refractory material; a resistive heating element 8; a gas inlet 16, 17; an outer tube 6, which does not contact the duct; and an inert gas inlet 27 for injecting an inert gas between the tube 6 and duct 8 to equalize the pressure in chambers 7 and 9. (Entire specification, specifically, the figure and column 2 lines 1-10.)

Toole et al differs from the present invention in that Toole et al does not teach two individual heating elements for heating the upper and lower wall of the duct, a heat shield, or that the duct 8 is 1 mm thick.

Mayuzumi teaches a heating apparatus that has a plurality of heating zones 4, 5, and 6 that are independently controlled to optimize and uniformly heat the substrate, and a mirrored inner surface that acts as a heat shield by reflecting radiant energy back

toward the duct control. (Entire document, specifically figure 1 and column 6 lines 14-23 and 45-52.)

The motivation for dividing the single zone controlled heater of Toole et al and making a multi-zone controlled heater as taught by Mayuzumi is to better optimize and control the heating of the substrates.

The motivation for adding a heat shield of Mayuzumi to the apparatus of Toole et al is to improve thermal efficiency by reflecting radiated heat back toward the substrates as taught by Mayuzumi.

The motivation for making the duct 8, 1 mm thick, is to optimize the size of the wall by providing a specific width of the wall, as required to build the duct, but not disclosed by Toole et al. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the single zone heater a multi-zone heater, and add a heat shield as taught by Mayuzumi, and to optimize the thickness of the duct in the apparatus of Toole et al.

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Griffiths et al, US patent 6,133,550, in view of Johnsgard et al, US Patent 6,002,109.

Griffiths et al was discussed above.

Griffiths et al differs from the present invention in that Griffiths does not disclose the spacing between the heating element and duct.

Johnsgard et al teaches spacing the heater 0.125 of an inch (3 mm) from the lower wall (column 10 lines 56-58).

The motivation for spacing the heater 1-3 mm from the duct is to optimize the placement of the heater as taught by Johnsgard, and required to build the apparatus, but not disclosed by Griffiths et al. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the placement of the heater in apparatus of Griffiths et al to 1-3 mm as taught by Johnsgard et al.

13. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Griffiths et al, US patent 6,133,550.

Griffiths et al was discussed above.



Griffiths et al differs from the present invention in that Griffiths does not disclose that the heaters are supplied with a voltage of 230 volts or less.

The standard voltage supplied by the electrical produces in the United States is 220 volts. It would be obvious to one of ordinary skill in the art to design the voltage requirement for the heater to be 220 volts (or 110 volts) so that the heater can draw power directly from the source without any special step up/down transformers. Such transformers would add cost and complexity to the apparatus. Therefore it would have been *prima facie obvious* to one of ordinary skill in the art at the time of the invention was made to design the heater to be supplied with 230 volts or less.

### **Conclusion**

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention. The cited art contains patents that could be used to reject the claims under 35 USC § 102 or 103. These rejections have not been made because they do not provide any additional or different teachings, and if they were applied, would have resulted in an undue multiplication of references. (See MPEP 707.07(g))

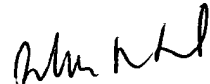
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (703) 308-1796. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers

Art Unit: 1763

for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jeffrie R. Lund  
Primary Examiner  
Art Unit 1763

JRL  
November 18, 2002